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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,678	10/11/2001	Kiyoshi Kumata	70840-56589	9445
21874	7590	10/20/2004	EXAMINER	
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			LEE, RICHARD J	
			ART UNIT	PAPER NUMBER
			2613	8

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,678

Applicant(s)

KUMATA ET AL.

Examiner

Richard Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6, 7</u> . | 6) <input type="checkbox"/> Other: ____ |

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1. The applicants are informed that the European Search Report as cited on the IDS filed May 6, 2002 has not been considered since the search report is not a publication. Similarly, the Korean Patent Office Action dated 10/31/2003 as cited on the IDS filed December 8, 2003 has not been considered since the office action is not a publication. A line has been drawn through both citations accordingly as shown in the attachments.
2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
3. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For examples:

- (1) claim 1, line 29, "the bird's-eye image" shows no clear antecedent basis;
- (2) claim 4, lines 3-4, claim 8, line 4, claim 10, lines 3-4, the phrase "a most likely moving direction of the mobile body" is vague and indefinite in that it is unclear what is being claimed, respectively;
- (3) claim 10, lines 5-6, the phrase "the most likely moving direction of the mobile body" is vague and indefinite in that it is unclear what is being claimed;
- (4) claim 12, line 4, the phrase "a most likely moving direction side of the vehicle" is vague and indefinite in that it is unclear what is being claimed;
- (5) claim 12, lines 5-6, the phrase "a second bumper provided at a side of or the vehicle opposite to the most likely moving direction side" is vague and indefinite in that it is unclear what is being claimed;

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(6) claim 13, lines 5-6, the phrase “the most likely moving direction of the vehicle” is vague and indefinite in that it is unclear what is being claimed; and

(7) claim 18, line 9, “the perspective bird’s-eye image” shows no clear antecedent basis.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-11, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi of record (2000-128031) in view of Katta et al (US 2004/0085447 A1).

Satoshi discloses a drive recorder, safety drive support system, and anti-theft system as shown in Figures 6-10, and 12, and substantially the same surround surveillance system mounted on a mobile body for surveying surroundings around the mobile body (see Figure 7) as claimed in claims 1, 2, 4, 5, 8, 10, 11, 15, and 17, comprising substantially the same omniazimuth visual system (see 12 of Figure 7), the omniazimuth visual system including at least one omniazimuth visual sensor (i.e., 4 of Figure 7 and see Abstract) including an optical system capable of obtaining an image with an omniazimuth view field area therearound (i.e., vision sensor 12 can observe 360 degrees around the vehicle, thereby providing an omniazimuth view field area therearound, see Abstract) and capable of central projection transformation of the image into an optical image, and an imaging section (i.e., 4, 8 of Figure 7) including an imaging lens for converting the optical image obtained by the optical system into image data; an image processor (i.e., 40 of Figure 7) for transforming the image data into at least one of panoramic image data and perspective image data (i.e., vision sensor 12 can observe 360 degrees around the vehicle,

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thereby providing a panoramic image, see Abstract); a display section (i.e., 48 of Figure 7) for displaying one of a panoramic image corresponding to the panoramic image data and a perspective image corresponding to the perspective image data; wherein the optical system includes a hyperboloidal mirror (i.e., 8 of Figure 7) which has a shape of one sheet of a two-sheeted hyperboloid, an optical axis of the hyperboloidal mirror being identical with an optical axis of the imaging lens, and the principal point of the imaging lens being located at one of focal points of the hyperboloidal mirror (see 4, 8 of Figure 7 and Abstract), and the display section (see 48 of Figure 7 and Abstract) displays the perspective image transformed from the bird's-eye image of the mobile body and surroundings thereof; wherein the at least one omniazimuth visual sensor is located such that a bird's-eye image of the mobile body and surroundings thereof is transformed into the image data (see 4 of Figure 7 and Abstract); the display section (i.e., the display section 48 displays a 360 degree coverage around the vehicle, which includes an image in a direction opposite to a most likely moving direction of the moving body as claimed, see Abstract) displays an image seen in a direction opposite to a most likely moving direction of the mobile body; wherein the image processor transforms image data corresponding to a first area within the omniazimuth view field area around the optical system into first perspective image data (i.e., as provided by 40 of Figure 7, see Abstract); wherein the optical system is positioned such that an optical axis of the optical system is perpendicular to a most likely moving direction of the mobile body (see 12 of Figure 9); wherein the display section simultaneously displays an image seen in a direction opposite to a most likely moving direction of the mobile body and an image seen in a direction which is not identical or opposite to the most likely moving direction of the mobile body (i.e., the 360 degree of coverage around the vehicle provides such simultaneous

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display, see Abstract); wherein the mobile body is a vehicle (see Figure 9 and Abstract); wherein the image processor includes a storage section (i.e., 42 of Figure 7 and see Abstract) for storing mobile body image data, wherein the mobile body image data is image data obtained by capturing an image of the mobile body, and the display section displays based on the combined image data a perspective image including the image showing the mobile body (i.e., sensor 12 provides a 360 degree coverage around the vehicle as well as the driver, thereby providing the combination of the mobile body image data and the perspective image data, see Abstract)

Satoshi does not particularly disclose, though, the followings:

(a) a display control section for controlling the display section, wherein the display section simultaneously or selectively displays the panoramic image and the perspective image, wherein in response to control by the display control section, the display section displays an image showing the mobile body on a display screen of the display section such that the mobile body is shown at a predetermined position on a displayed image on the display screen as claimed in claims 1, 3, and 9;

(b) wherein in response to control by the display control section, the image processor transforms image data corresponding to a second area within the omniazimuth view field area around the optical system which does not overlap with the first area into a second perspective image data which does not coincide with the first perspective image data, wherein the second area is identical to an area which is obtained by performing at least one of translational transfer processing and zoom-in/zoom-out processing on the first area as claimed in claims 6 and 7; and.

(c) the image processor combines the mobile body image data from the storage section with the perspective image data derived from the optical system as claimed in claim 15.

Regarding (a) and (b), Katta et al discloses an on-vehicle image display apparatus as shown in Figures 1, 3-6, and 9, and teaches the conventional use of a display control section for controlling the display section (see page 6, section [0073]), wherein the display section simultaneously or selectively displays the panoramic image and the perspective image (i.e., switching unit 401 of Figure 9 has the capability to select images from among 6 images, the images including panoramic and perspective images, and Figure 4 shows the simultaneous display of panoramic and perspective images, see page 6, sections [0069], [0071], [0073], [0074], page 7, sections [0077], [0078], page 8, sections [0086], [0087]). Therefore, it is considered obvious to use the display control section of Katta et al so that, in response to control by the display control section, the display section of Satoshi may display an image showing the mobile body on a display screen of the display section such that the mobile body is shown at a predetermined position on a displayed image on the display screen as claimed, if such control of the display were not already within Satoshi. In addition, Satoshi teaches the particular image processings involving the transformation of image data corresponding to a second area within an omniazimuth view field area around the optical system which does not overlap with the first area into a second perspective image data which does not coincide with the first perspective image data, wherein the second area is identical to an area which is obtained by performing at least one of translational transfer processing and zoom-in/zoom-out processing on the first area (see page 8, sections [0086], [0087], page 9, section [0097], page 10, sections [0101], [0102]). Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi and Katta et al in front of him/her and the general knowledge of display controls and image transformations, would have had no difficulty in providing the display control section as taught by Katta et al for

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simultaneously or selectively displaying the panoramic and perspective images of Satoshi and so that the display section of Satoshi may display an image showing the mobile body on a display screen of the display section such that the mobile body is shown at a predetermined position on a displayed image on the display screen as well as the image transformations involving the zoom-in/zoom-out processing as taught by Katta et al for the first area of Satoshi for the same well known display control and image transformation for manipulation of images for intended and better viewing purposes as claimed.

Regarding (c), it is noted that though the image processor 40 of Figure 7 of Satoshi combines mobile body image data with perspective image data, as provided by the sensor 12 of Figure 7, Satoshi does not teach the image processor combining the mobile body image data from the storage section with the perspective image data derived from the optical system. The Examiner takes Official Notice that the particular use of a storage section for buffering the mobile body image data is old and well recognized in the art. Therefore, it is considered obvious to provide a storage section before the processor 40 of Satoshi et al to thereby provide the buffering of mobile body image data and so that the processor 40 may ultimately combine the mobile body image data from the storage section with the perspective image data derived from the optical system.

6. Claims 12-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi and Katta et al as applied to claims 1-11, 15, and 17 in the above paragraph (5), and further in view of Tuck(4,772,942).

The combination of Satoshi and Katta et al discloses substantially the same surround surveillance system as above, further including the vehicle including a first bumper provided at a

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most likely moving direction side of the vehicle and a second bumper provided at a side of or the vehicle opposite to the most likely moving direction side (see Figures 9 and 21 of Satoshi) as claimed in claim 12.

The combination of Satoshi and Katta et al does not particularly at least one omniazimuth visual sensor includes a first omniazimuth visual sensor placed on the first bumper and a second omniazimuth visual sensor placed on the second bumper, wherein the first omniazimuth visual sensor is placed on one of a right end and a left end of the first bumper with respect to the most likely moving direction of the vehicle, and the second omniazimuth visual sensor is placed on one end of the second bumper which is diagonal to the end of the first bumper where the first omniazimuth visual sensor is placed with respect to a body of the vehicle; the display section displays an image obtained by combining a first perspective image derived from the first omniazimuth visual sensor and a second perspective image derived from the second omniazimuth visual sensor; and wherein, when the display section displays a perspective image of an overlapping region between a display region of a perspective bird's-eye image of the mobile body and surroundings thereof which is obtained through the first omniazimuth visual sensor and a display region of a perspective bird's-eye image of the mobile body and surroundings thereof which is obtained through the second omniazimuth visual sensor, the display section displays based on control by the display control section a perspective image derived from one of the first omniazimuth visual sensor and the second omniazimuth visual sensor as claimed in claims 12-14 and 19. It is noted that Katta et al does teach the particular use of a plurality of first sensors placed on a first bumper (i.e., 2, 6 of Figure 1, and see Figure 4 of Katta et al) for providing an omniazimuth forward view of the vehicle as well as a plurality

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of second sensors (i.e., 3-5 of Figure 1 of Katta et al), with one being placed on a second bumper (i.e., 4 of Figure 1 of Katta et al) for providing an omniazimuth backward view of the vehicle, the second sensor 4 being place on one end of the second bumper which is diagonal to the end of the first bumper where the first sensor is place with respect to a body of the vehicle (see Figure 1 of Katta et al), the display section displays an image obtained by combining a first perspective image derived from the first plural sensors and a second perspective image derived from the second plural sensors, with the particular display of an overlapping region between a display region obtained through first sensors and a display region obtained through second sensors (see Figure 4 of Katta et al). Katta et al does not particularly teach at least one omniazimuth visual sensor including a first omniazimuth visual sensor placed on the first bumper and a second omniazimuth visual sensor placed on the second bumper, and the particular display section displaying an image obtained by combining a first perspective image derived from the first omniazimuth visual sensor and a second perspective image derived from the second omniazimuth visual sensor, with the display section displaying a perspective image of an overlapping region between a display region obtained through the first omniazimuth visual sensor and a display region obtained through the second omniazimuth visual sensor as claimed. However, Tuck discloses a display system having a wide field of view as shown in Figures 3 and 4, and teaches the conventional use of a single camera over a plurality of cameras to provide a wide field of view (see column 5, lines 24-35), and the particular display of overlapping images from the first and second omniazimuth visual sensors (see Figure 4). Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi, Katta et al, and Tuck references in front of him/her and the general knowledge of panoramic

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and wide field of viewing systems, would have had no difficulty in providing the single camera omniazimuth field of view and display system of Tuck in place of the plural camera systems 2-6 of Katta et al and the thus modified single camera system to be provided within Satoshi so that at least one omniazimuth visual sensor including a first omniazimuth visual sensor is placed on the first bumper and a second omniazimuth visual sensor is placed on the second bumper of Satoshi for the same well known reduction of cameras, wide field of viewing, and display of overlapping images from the first and second omniazimuth visual sensors purposes as claimed.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi and Katta et al as applied to claims 1-11, 15, and 17 in the above paragraph (5), and further in view of Nakamura (6,314,364).

The combination of Satoshi and Katta et al discloses substantially the same surround surveillance system as above, but does not particularly disclose wherein the mobile body image data is image data created by using computer graphics software as claimed in claim 16. The particular use of computer graphics software for the creation of images, in general is however old and well recognized in the art, as exemplified by Nakamura (see CPU 6 of Figure 1, column 2, lines 59-67, column 3, lines 31-40). Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi, Katta et al, and Nakamura references in front of him/her and the general knowledge of computer generated images, would have had no difficulty in providing the computer generated image system with computer graphics software control as taught by Nakamura within the surround surveillance system of Satoshi to thereby create computer graphics mobile body image data for the same well known graphics control of images for further enhancement/manipulations purposes as claimed.

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8. Claim 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McCarthy et al, Kyrtos et al, Gutta et al, McMahon, Franke, and Fujinami et al disclose various types of monitoring systems within a vehicle.

10. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

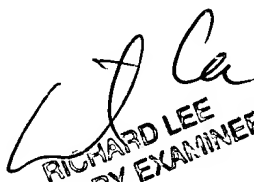
(703) 872-9314, (for formal communications intended for entry)

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group customer service whose telephone number is (703) 306-0377.


RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

10/12/04

